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NPIC/TSG/RED-271-70
9 NOV
1970

MEMORANDUM FOR: Chief, Technical Services Group, NPIC
ATTENTION : [REDACTED] PPS/TSG
SUBJECT : RED CY-70 Accomplishments

1. Research, Development & Engineering.

a. The NPIC RD&E Program achieved heartening progress along a broad front, especially by a number of advances in the general areas of viewing, mensuration, and human factors. Among the more operationally pertinent single achievements was completion of the 1540 Light Table, whose success was recognized by large-scale, community-wide, joint procurement. Design of the Scan and Search PI Station was also completed, and a prototype is under contract. The landmark High Precision Stereo Comparator moved nearer completion, and delivery of the device is expected early in FY-71.

b. A long and successful multifaceted development effort with [REDACTED] was concluded. Among the many benefits derived from that effort was the [REDACTED] Precision Enlarger, which has become the high performance workhorse of several organizations in the exploitation community. Another large development project, the Automatic Target Indexing Device which will be capable of detecting cloud coverage at 100 feet per minute, scored significant further progress, and the Imagery Interpretation Research program made a series of human factors advancements. Among the latter were original work in new microscope design criteria: development of a highly sensitive stereo acuity test; determination of markedly improved mensuration error prediction equations for mono and stereo, and development of techniques to improve mensuration accuracy; in-depth assessment of PI search and target identification capabilities, leading to the establishment of PI target training packages and selection criteria, and continuation of research to determine resolution requirements for various targets.

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c. During the year, an Image Manipulation Research Laboratory was established and carried out experiments directed toward improving degraded imagery, through the use of optical and digital image manipulation and chemical enhancement techniques. Other work in the laboratory showed some preliminary progress toward automatic determination of image quality. At the same time, the Exploratory Laboratory undertook considerable work with color imagery. Among the more significant projects were the beginning of a vocabulary of color terminology and the development of a preliminary color [] study which permits the use of color densitometers to make color measurements from SO-242 photography in place of more expensive spectrophotometers or colorimeters.

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d. During the year NIH computer facilities and [] software were utilized to demonstrate the feasibility of computer assisted PI report editing and graphics analysis on composition to a large segment of the exploitation community.

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e. Finally, one of the Center's most outstanding research projects, the Dry Silver Program, continued to move forward. Three pieces of equipment for use with dry silver materials were delivered and are undergoing test and evaluation. Operational suitability tests are also underway to determine their most efficient use in Center operations.

2. RD&E Management Support.

a. As part of a dedicated effort to tighten control of TSG production, the PPS inaugurated a new project status reporting system. For R&D projects, the RED developed a technique for unifying existing project information and status reporting systems.

b. The PPS produced its annual NPIC Equipment Summary, which has become a standard reference in the community for information about state-of-the-art imagery exploitation equipment.

c. A film destruction and silver recovery system was developed under contract. Although it was unacceptable because of the safety and environmental considerations,

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modifications are under consideration which may bring the system into operation during 1971.

d. The Reconnaissance Systems Branch carried out a number of major liaison functions throughout the entire intelligence community, including contributions to the Inlow Report and the NPIC study of EOI; participation in the VHR study and the SLR Senior Lance Program; detailed preparations required for [] exploitation; assistance in production of the Reports Control Manual for controlling mission exploitation data flow; and technical representation to MC&G as well as technical advice to the ARGO committee.

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Chief, Research & Engineering, TSG

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